WHAT IS CLAIMED IS:

1. An apparatus for transmitting signals between UWB networks, comprising:

a signal converter for converting received optical signals from another UWB

5 network into UWB signals, transmitting the converted optical signals within a UWB

network, and converting UWB signals generated from within the UWB network into

optical signals; and

an optical signal transmission means for directing the received optical signals the

signal converter and a further UWB network.

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2. The apparatus as claimed in claim 1, further including a first port for receiving

optical signals from the other UWB networks.

3. The apparatus as claimed in claim 1, further including a second port for

15 outputting the optical signals to other UWB networks.

4. The apparatus as claimed in claim 1, wherein the optical signal transmission

means is a photocoupler.

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5. An apparatus for transmitting signals between UWB networks, comprising:

an optical switch for transmitting received optical signals from an other UWB network to a signal converter and an output port to further UWB networks, wherein the signal converter converts the received optical signals into UWB signals, transmits the converted optical signals within a UWB network, and converts UWB signals generated within the UWB network into optical signals.

6. The apparatus as claimed in claim 5, wherein the optical switch includes a controller.

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7. The apparatus as claimed in claim 5, wherein the optical switch stores a predetermined identification number and transmits the received optical signal to the signal converter only when a destination identification number in the received optical signal corresponds to the predetermined identification number.

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- 8. The apparatus as claimed in claim 5, wherein the optical switch is a passive device.
- 9. The apparatus as claimed in claim 8, wherein the optical switch further includes 20 sensors.

10. The apparatus as claimed in claim 8, wherein the optical switch further includes a CSMA/CA method